May, 1984

17TH ANNUAL McGRAW-HILL SURVEY OF POLLUTION CONTROL EXPENDITURES, 1983-84

American business plans to increase its capital investment in pollution control equipment by 4.3% this year to $9.5 billion (Table I)*. In comparison, plans for total business spending on capital goods is expected to rise a hefty 18.6% in 1984, according to McGraw-Hill's "Annual Spring Survey of Plant and Equipment Expenditures."

If realized, the planned increase in purchases of equipment used to combat air, water, and solid waste pollution would end two consecutive years of declines. Pollution control expenditures fell almost 3% in 1983 to $9.1 billion, after slipping nearly 2% in 1982 to $9.4 billion. Even with projected increases, however, pollution control capital expenditures this year would still fall significantly below peak spending of $10.9 billion, reached in 1977.

If the current 1984 investment target is met, the share of capital investment allocated to pollution control equipment would fall, continuing a trend that began in 1976 (see Figure I). In 1984, business estimates that 2.7% of capital spending will be devoted to pollution control equipment, compared to 3.0% last year and a high of 5.6% in 1976 (Tables IV and VII).

These are some of the major findings of the "17th Annual McGraw-Hill Survey of Pollution Control Expenditures." The survey,

*Tables with Roman numerals appear at back of report

Conducted during March and April, drew responses from 548 companies that collectively account for 28% of total U.S. capital spending (all respondents did not answer the pollution control spending questions). However, the dollar figures provided in the survey represent spending for entire industries, not just for those companies that responded to the survey.

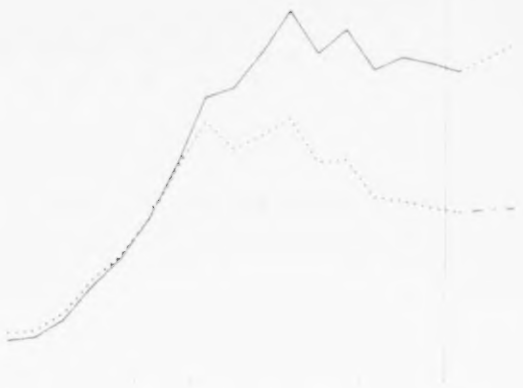
One conclusion that can be drawn from the survey and Figure 1 (above) is that investment in pollution abatement equipment has become a declining priority for U.S. business. One reason is that the 1981-1982 recession forced sharp cutbacks in all discretionary capital spending, and pollution control expenditures were no exception.

In addition, the implementation of newer and tougher environmental statutes has practically ceased under the Reagan administration. Moreover, even if no relaxation occurs in existing regulations, pollution control spending will continue to decline in importance relative to total capital spending. That's because industry has steadily closed the gap between its environmental practices and those

BEST AVAILABLE COPY

required by governmental regulation. Thus most pollution control dollars currently being spent are probably more for modernization of existing equipment than for the acquisition of start-up systems.

When spending is adjusted for inflation, the downward trend in pollution control investment becomes even more clear, as demonstrated in Figure II.



As the illustration shows, inflation-adjusted spending on pollution control equipment peaked in the mid-70's and has declined steadily ever since. This year's projections, if realized, would alter that trend little if any.

The survey also shows that pollution control equipment spending is expected to continue to decline in relative importance next year. In 1985, pollution control expenditures are planned to be slightly over $10 billion or about 2.6% of all capital spending plans. If realized, that would be the lowest allocation of capital spending to pollution control equipment since 1970.

Industry and Sector Spending

As is customary, electric utilities plan the largest capital outlays for pollution control equipment. In 1984, $2.8 billion in expenditures are planned, 23% less than 1983's $3.6 billion. Since electric utilities are easily the largest pollution control equipment spenders, that 23% decline limits the magnitude of 1984's increase in total pollution control expenditures. In fact, excluding electric utilities, business projects a substantial 22.3% expenditure hike.

For 1984, the only other industry which plans to spend in excess of $1 billion is the petroleum industry. Unlike the electric utilities though, the petroleum industry has planned a sharp 10% hike in its pollution control capital budget. Other industries with a large share of their capital budgets going to pollution control equipment (Table IV) include nonferrous metals (9%), stone, clay, glass (9%), chemicals (5.5%) and paper and pulp (4.9%).

Manufacturers plan to boost their pollution control capital spending while nonmanufacturers plan to cut it. Manufacturers plan to hoist 1984 spending more than 19%, while nonmanufacturers--due to the electric utilities--estimate they will slash pollution capital budgets by 11%.

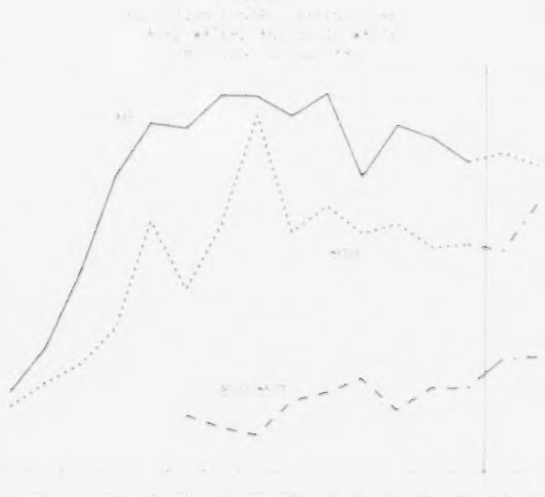
As in 1983, the largest percentage increase in pollution control expenditures planned is planned by the autos, trucks, and parts industry, up 166% in 1984. But the increase is from a small base. Other large, more important in dollar terms percentage increases were reported by chemicals (31.2%) and trade and services (59.3%).

Simultaneously, several industries planned sharp cutbacks in pollution control investment. The largest significant decline was reported by electric utilities (-23%), followed by paper and pulp (-22.2%) and other nondurables (-20.7%).

Air, Water, Solid Waste Spending

As has been the trend, the greatest portion of pollution control expenditures in 1984 will go to equipment used to reduce air pollution (Table III). However, the importance of air pollution expenditures is declining relative to spending on water pollution and solid waste disposal. In 1984, plans for air pollution control spending represent 46.4% of all planned pollution control spending. In 1983, air pollution spending was 47.2% of the total. Nevertheless, planned air pollution capital expenditures are 2.6% higher than in 1983, though after inflation adjustment they will remain virtually flat.

On a longer term basis, as air pollution spending has declined and water pollution spending has risen modestly, outlays on solid waste pollution control have risen, though from a small base (see Figure III).



On average, solid waste spending has increased 3.3% per year since 1975. In 1984 alone, businesses plan a 23.2% boost in their solid waste pollution control spending (Table III).

Much of this increase can be attributed to large spending increases by a few key industries--nonferrous metals (84%), autos, trucks & parts (147%), chemicals (20%) and petroleum (28%).

As a result of these projected increases, solid waste pollution control equipment's share in total pollution abatement investment should rise to 19.8% in 1984 compared to 16.8% last year. As Table I below shows, big spending increases by chemicals and electric utilities account for much of the overall rise in solid waste control efforts.

Table I

Solid Waste Spending By Chemicals and Electric Utilities

	1975-77	1978-80	1981-83	1984-85
Millions $	653	871	1451	968
As % of Total Solid Waste Spending	20.4%	19.5%	33.6%	25.4%
Total Industry Solid Waste Spending as % of Total Pollution Control Spending	10.8%	15.3%	15.4%	19.5%

The recent rise in solid waste versus air and water pollution control spending is not surprising. For while air and water pollution were targeted for cleanup in the 1960's, it was only in the 1970's that the public became sensitized to the hazards of solid waste. More specifically, the cry was raised in the wake of the Love Canal incident in 1976 and that led to the discovery of other chemical dump problems. The Federal government responded in late 1980 with passage of the "Superfund" legislation that taxed solid waste polluters. Also, the installation in the early 1970's of systems for arresting air pollution (e.g. catalytic precipitators used at coal-fired generating plants) began to cause solid waste disposal problems that required remedial action.

INDEX OF TABLES

TABLE		PAGE
I	Investment for Pollution Control	8
II	Pollution Control Expenditures - Air, Water and Solid Waste (Percent of Capital Spending)	9
III	Pollution Control Expenditures - Air, Water and Solid Waste (Millions of Dollars)	10
IV	Pollution Control Expenditures as Percent of Total Capital Spending	11
V	Historical Investment for Pollution Control	12
VI	Historical Pollution Control Expenditures -- Air, Water, Solid Waste	14
VII	Historical Pollution Control Expenditures as Percent of Total Capital Spending	18

NOTE: The other durables category listed in the tables includes lumber, furniture, jewelry, toys, and transportation equipment other than autos and aerospace. Other nondurables includes apparel, tobacco, printing and publishing, and leather.

TABLE I

INVESTMENT FOR POLLUTION CONTROL
(Millions of Dollars)

INDUSTRY	Actual 1983	Planned 1984	% Change 1983-84	Planned 1985
Iron & Steel	176	239	35.5	356
Nonferrous Metals	260	340	31.1	397
Electrical Machinery	110	134	21.6	240
Non-Electrical Machinery	397	538	35.5	570
Autos,Trucks & Parts	74	196	166.0	397
Aerospace	100	147	46.9	159
Fabricated Metals	82	128	56.6	77
Instruments	55	97	75.4	118
Stone,Clay & Glass	261	315	20.6	184
Other Durables	81	111	37.4	143
TOTAL DURABLES	1,596	2,244	40.7	2,645
Chemicals	650	853	31.2	879
Paper & Pulp	416	324	-22.2	381
Rubber & Plastic	17	33	88.2	26
Petroleum	1,392	1,529	9.9	1,918
Food & Beverage	202	228	12.6	364
Textiles	51	66	29.8	65
Other Nondurables	306	243	-20.7	227
TOTAL NONDURABLES	3,035	3,275	7.9	3,860
ALL MANUFACTURING	4,630	5,519	19.2	6,505
Mining	75	83	10.2	106
Railroads	87	103	18.5	67
Airlines	7	5	-35.1	5
Electric Utilities	3,643	2,804	-23.0	2,134
Gas Utilities	76	99	29.4	104
Communication & Other	212	260	22.3	391
Trade & Services	418	666	59.3	702
ALL NONMANUFACTURING	4,518	4,019	-11	3,510
ALL BUSINESS	9,149	9,538	4.3	10,015

TABLE II

POLLUTION CONTROL EXPENDITURE: AIR, WATER, AND SOLID WASTE

(Percent of Capital Spending)

INDUSTRY	ACTUAL 1983			PLANNED 1984			PLANNED 1985		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	2.9	2.7	0.3	2.7	2.2	0.4	2.3	2.7	0.5
Nonferrous Metals	6.0	2.1	2.5	3.7	2.3	3.0	3.2	3.0	1.6
Electrical Machinery	0.4	0.4	0.2	0.3	0.3	0.2	0.5	0.5	0.4
Non-Electrical Machinery	0.8	1.5	0.8	0.9	1.6	0.9	0.9	1.5	1.0
Autos,Trucks & Parts	0.4	0.3	0.3	0.5	0.8	0.5	1.3	1.1	0.4
Aerospace	0.5	0.5	0.9	0.5	0.5	1.1	0.5	0.5	1.2
Fabricated Metals	1.2	2.3	0.3	1.3	2.7	0.4	1.0	1.2	0.4
Instruments	0.9	0.9	0.5	1.8	1.1	0.4	1.8	1.1	0.4
Stone,Clay & Glass	7.8	2.3	0.6	7.5	0.7	0.8	2.8	1.7	0.7
Other Durables	1.1	0.5	0.5	1.7	0.7	0.6	2.3	0.7	0.5
TOTAL DURABLES	1.4	1.1	0.6	1.4	1.1	0.7	1.3	1.3	0.7
Chemicals	1.4	2.0	1.5	2.5	1.5	1.6	1.8	1.9	1.5
Paper & Pulp	2.5	2.6	1.6	1.9	1.7	1.3	2.4	1.5	1.4
Rubber & Plastic	0.4	0.5	0.0	0.5	0.4	0.3	0.5	0.4	0.1
Petroleum	1.8	3.4	0.7	2.1	2.5	0.7	1.9	2.8	1.0
Food & Beverage	1.2	1.6	0.3	1.1	1.3	0.6	1.7	1.8	0.9
Textiles	1.6	1.5	0.6	1.9	1.5	0.9	2.1	1.3	0.8
Other Nondurables	2.7	0.9	0.9	1.0	0.9	0.9	1.0	0.9	0.9
TOTAL NONDURABLES	1.8	2.4	0.9	1.8	1.8	1.0	1.8	2.1	1.1
ALL MANUFACTURING	1.6	1.8	0.8	1.6	1.4	0.8	1.5	1.7	0.9
Mining	0.2	0.3	0.1	0.2	0.5	0.1	0.3	0.7	0.1
Railroads	0.2	1.9	0.2	0.2	1.3	0.2	0.2	0.5	0.2
Airlines	0.2	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
Electric Utilities	6.4	2.8	1.2	4.8	1.9	0.8	4.3	1.9	0.5
Gas Utilities	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Communication & Other	0.4	0.1	0.1	0.4	0.1	0.1	0.5	0.1	0.1
Trade & Services	0.1	0.2	0.2	0.1	0.3	0.3	0.1	0.3	0.2
ALL NONMANUFACTURING	1.3	0.7	0.3	1.0	0.5	0.3	0.8	0.5	0.2
ALL BUSINESS	1.4	1.1	0.5	1.2	0.9	0.5	1.1	1.0	0.5

TABLE III
POLLUTION CONTROL EXPENDITURE: AIR, WATER, AND SOLID WASTE
(Millions of Dollars)

INDUSTRY	ACTUAL 1983			PLANNED 1984			% CHANGE 1983-84			PLANNED 1985		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	88	81	8	120	100	18	37	24	141	149	176	31
Nonferrous Metals	146	52	62	141	86	114	-3	65	84	164	152	81
Electrical Machinery	38	45	27	46	50	37	21	12	38	86	87	67
Non-Electrical Machinery	103	190	104	141	253	144	37	33	38	160	248	162
Autos,Trucks & Parts	29	25	21	57	88	51	101	258	147	182	159	56
Aerospace	27	27	46	35	35	76	32	32	64	38	38	84
Fabricated Metals	26	50	6	39	79	10	52	57	69	30	36	11
Instruments	22	22	12	54	32	11	147	48	-6	64	39	14
Stone,Clay & Glass	191	55	15	262	24	28	37	-56	93	101	63	26
Other Durables	44	19	18	64	25	21	47	33	19	93	30	20
TOTAL DURABLES	712	566	318	961	773	511	35	37	61	1,065	1,028	552
Chemicals	186	262	201	384	227	243	106	-14	20	307	319	253
Paper & Pulp	153	162	101	128	110	85	-16	-32	-16	172	110	99
Rubber & Plastic	8	9	1	14	10	9	76	15	1,515	13	11	2
Petroleum	415	808	169	599	714	216	44	-12	28	632	960	326
Food & Beverage	78	106	18	80	101	47	3	-5	161	140	148	76
Textiles	22	20	8	29	23	13	32	14	63	32	20	13
Other Nondurables	184	61	61	86	79	78	-53	30	27	78	74	74
TOTAL NONDURABLES	1,046	1,429	559	1,320	1,265	690	26	-11	23	1,374	1,643	843
ALL MANUFACTURING	1,758	1,995	877	2,281	2,038	1,200	30	2	37	2,439	2,671	1,395
Mining	22	41	13	19	55	9	-15	36	-28	28	65	14
Railroads	7	73	7	12	80	11	62	10	58	15	37	15
Airlines	7	0	0	5	0	0	-35	NC	NC	5	0	0
Electric Utilities	2,249	973	421	1,789	700	314	-20	-28	-25	1,369	607	158
Gas Utilities	25	25	25	33	33	33	29	29	29	35	35	35
Communication & Other	150	31	31	166	47	47	10	51	51	261	65	65
Trade & Services	98	160	159	126	266	274	28	66	72	127	334	242
ALL NONMANUFACTURING	2,559	1,304	656	2,148	1,182	688	-16	-9	5	1,839	1,143	528
ALL BUSINESS	4,317	3,298	1,533	4,429	3,221	1,888	3	-2	23	4,278	3,815	1,923

TABLE IV

POLLUTION CONTROL AS A
PERCENT OF CAPITAL SPENDING

INDUSTRY	Actual 1983	Planned 1984	Planned 1985
Iron & Steel	5.9	5.3	5.4
Nonferrous Metals	10.6	9.0	7.8
Electrical Machinery	1.0	0.9	1.5
Non-Electrical Machinery	3.2	3.5	3.4
Autos,Trucks & Parts	1.0	1.8	2.8
Aerospace	2.0	2.2	2.3
Fabricated Metals	3.7	4.3	2.6
Instruments	2.2	3.2	3.4
Stone,Clay & Glass	10.7	9.0	5.3
Other Durables	2.1	2.9	3.5
TOTAL DURABLES	3.1	3.2	3.3
Chemicals	4.9	5.5	5.2
Paper & Pulp	6.7	4.9	5.3
Rubber & Plastic	0.9	1.2	1.0
Petroleum	5.9	5.3	5.7
Food & Beverage	3.1	3.0	4.4
Textiles	3.6	4.3	4.3
Other Nondurables	4.4	2.9	2.9
TOTAL NONDURABLES	5.1	4.6	4.9
ALL MANUFACTURING	4.2	3.9	4.1
Mining	0.6	0.7	1.1
Railroads	2.2	1.7	0.9
Airlines	0.2	0.2	0.1
Electric Utilities	10.4	7.5	6.7
Gas Utilities	1.1	1.1	1.0
Communication & Other	0.5	0.6	0.8
Trade & Services	0.5	0.6	0.6
ALL NONMANUFACTURING	2.4	1.9	1.6
ALL BUSINESS	3.0	2.7	2.6

TABLE V

TOTAL POLLUTION CONTROL EXPENDITURES--HISTORICAL
(Millions of Dollars)

INDUSTRY	1967	1968	1969	1970	1971	1972	1973	1974	1975
Iron & Steel	$ 114	$ 105	$ 154	$ 168	$ 163	$ 132	$ 146	$ 180	$ 450
Nonferrous Metals	44	16	39	96	105	148	234	580	597
Electrical Machinery	31	95	52	80	70	79	130	89	132
Machinery	30	61	54	132	107	123	167	214	114
Autos, Trucks & Parts	114	53	99	128	162	198	429	456	191
Aerospace	13	23	35	25	30	42	87	30	77
Other Transportation Equipment	7	15	39	36	30	15	41	67	31
Fabricated Metals	26	46	43	52	85	104	130	109	213
Instruments	6	15	30	31	72	28	33	57	58
Stone, Clay & Glass	46	42	63	68	124	129	142	287	292
Other Durables	64	76	134	177	117	99	164	247	182
TOTAL DURABLES	495	547	742	992	1,065	1,097	1,705	2,316	2,337
Chemicals	92	109	135	166	268	368	432	472	679
Paper & Pulp	89	79	147	162	266	340	454	480	653
Rubber	7	10	9	49	43	60	96	47	56
Petroleum	97	159	242	310	469	513	594	526	1,228
Food & Beverages	41	22	61	100	127	171	228	536	213
Textiles	8	11	14	18	30	28	36	59	80
Other Nondurables	61	28	49	103	20	110	78	53	32
TOTAL NONDURABLES	395	418	657	908	1,223	1,590	1,918	2,173	2,941
ALL MANUFACTURING	890	965	1,399	1,901	2,288	2,687	3,623	4,489	5,278
Mining	55	49	99	108	75	147	252	323	500
Railroads	NA	NA	NA	31	21	27	47	51	58
Airlines	NA	NA	NA	20	10	52	194	178	23
Other Transportation	0	0	0	7	144	23	63	75	360
Communications	0	0	0	*	*	215	422	1,118	305
Electric Utilities	146	231	154	401	540	1,074	1,140	1,181	1,515
Gas Utilities	81	25	130	108	48	43	45	70	43
Trade & Services	0	0	0	179	445	480	592	860	555
ALL NONMANUFACTURING	282	305	383	854	1,283	2,061	2,755	3,856	3,357
ALL BUSINESS	1,172	1,270	1,782	2,755	3,571	4,748	6,378	8,345	8,637

NA - Not Available
* Less than $500,000

TABLE V
TOTAL POLLUTION CONTROL EXPENDITURES--HISTORICAL
(Millions of Dollars)
(Continued)

INDUSTRY	1976	1977	1978	1979	1980	1981	1982
Iron & Steel	$ 620	$ 466	$ 436	$ 615	$ 503	$ 415	$ 289
Nonferrous Metals	402	547	253	182	247	234	219
Electrical Machinery	176	126	193	204	198	132	236
Machinery	227	435	281	231	200	357	197
Autos, Trucks & Parts	174	221	303	677	701	150	20
Aerospace	76	66	97	58	37	138	128
Other Transportation Equipment**	52	41	66	---	---	---	---
Fabricated Metals	250	144	150	119	99	70	45
Instruments	62	41	64	95	72	128	96
Stone, Clay & Glass	168	164	260	142	193	157	81
Other Durables	167	146	166	228	202	334	154
TOTAL DURABLES	2,374	2,397	2,269	2,571	2,452	2,115	1,465
Chemicals	999	855	651	744	961	900	954
Paper & Pulp	799	468	315	438	458	328	313
Rubber	75	195	120	102	49	63	76
Petroleum	808	1,053	753	1,151	877	1,355	1,254
Food & Beverages	350	266	376	218	200	342	530
Textiles	132	76	108	132	85	77	63
Other Nondurables	51	139	103	124	173	55	358
TOTAL NONDURABLES	3,214	3,052	2,426	2,909	2,803	3,120	3,546
ALL MANUFACTURING	5,588	5,449	4,695	5,480	5,255	5,235	5,011
Mining	513	1,617	1,092	182	194	983	561
Railroads	32	55	56	64	158	81	184
Airlines	21	37	31	112	75	3	140
Other Transportation**	253	97	74	72	--	--	--
Communications	352	242	318	309	80	164	191
Electric Utilities	2,156	2,356	2,143	2,959	2,592	2,956	2,889
Gas Utilities	127	173	69	44	*	*	23
Trade & Services	641	906	1,192	1,158	834	142	394
ALL NONMANUFACTURING	4,095	5,483	4,975	4,900	3,933	4,329	4,382
ALL BUSINESS	9,683	10,932	9,670	10,380	9,188	9,564	9,393

NA - Not Available
* Less than $500,000
** As of 1979, other transportation equipment is included in other durables. As of 1980, other transportation services are included with communications.

TABLE VI

HISTORICAL POLLUTION CONTROL EXPENDITURES -- AIR WATER, SOLID WASTE
(Millions of Dollars)

INDUSTRY	1970		1971		1972		1973	
	Air	Water	Air	Water	Air	Water	Air	Water
Iron & Steel	$ 70	$ 98	$ 84	$ 79	$ 71	$ 61	$ 65	$ 81
Nonferrous Metals	77	19	78	27	123	25	199	35
Electrical Machinery	38	42	36	34	37	42	59	71
Machinery	89	43	70	37	64	59	92	75
Autos, Trucks & Parts	86	42	101	61	117	81	236	193
Aerospace	15	10	22	8	24	18	54	35
Other Transportation Equipment	29	7	22	8	12	3	32	9
Fabricated Metals	25	27	65	20	64	40	51	79
Instruments	22	9	30	42	10	18	21	12
Stone, Clay & Glass	41	27	94	30	81	48	94	48
Other Durables	76	101	53	64	73	26	111	53
TOTAL DURABLES	568	425	655	410	676	421	1,014	691
Chemicals	78	88	118	150	159	209	174	258
Paper & Pulp	62	100	126	140	182	158	294	160
Rubber	31	18	20	23	30	30	69	27
Petroleum	140	170	250	219	340	173	379	215
Food & Beverages	45	55	54	73	83	88	120	108
Textiles	6	12	8	22	13	15	13	23
Other Nondurables	7	96	12	8	58	52	65	13
TOTAL NONDURABLES	369	539	588	635	865	725	1,114	804
ALL MANUFACTURING	937	964	1,243	1,045	1,541	1,146	2,128	1,495
Mining	69	39	36	39	97	50	194	58
Railroads	23	8	8	13	8	19	23	24
Airlines	17	3	10	*	48	4	194	0
Other Transportation	5	2	83	61	10	13	54	9
Communications	*	*	*	*	72	143	211	211
Electric Utilities	253	148	319	221	856	218	795	345
Gas Utilities	74	34	26	22	24	19	24	21
Trade & Services	90	89	274	171	280	200	500	92
ALL NONMANUFACTURING	531	323	756	527	1,395	666	1,995	760
ALL BUSINESS	1,468	1,287	1,999	1,572	2,936	1,812	4,123	2,255

* Less than $500,000

TABLE VI

HISTORICAL POLLUTION CONTROL EXPENDITURES -- AIR WATER, SOLID WASTE
(Millions of Dollars)
(Continued)

	1974		1975			1976		
INDUSTRY	Air	Water	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	$ 104	$ 76	$ 199	$ 172	$ 79	$ 428	$ 188	$ 4
Nonferrous Metals	400	180	468	54	75	323	41	38
Electrical Machinery	46	43	38	69	25	43	99	34
Machinery	119	95	49	54	11	133	77	17
Autos, Trucks & Parts	254	202	67	64	60	109	43	22
Aerospace	19	11	37	29	11	34	27	15
Other Transportation Equipment	67	*	17	7	7	14	9	29
Fabricated Metals	80	29	98	103	12	94	147	9
Instruments	28	29	25	27	6	15	34	13
Stone, Clay & Glass	180	107	162	70	60	129	31	8
Other Durables	158	89	138	35	9	94	56	17
TOTAL DURABLES	1,455	861	1,298	684	355	1,416	752	206
Chemicals	207	265	259	329	91	292	601	106
Paper & Pulp	284	196	405	239	9	258	419	122
Rubber	20	27	30	15	11	49	25	1
Petroleum	365	161	691	345	192	453	313	42
Food & Beverages	133	403	92	96	25	120	148	82
Textiles	33	26	26	42	12	26	88	18
Other Nondurables	33	20	23	8	1	20	21	10
TOTAL NONDURABLES	1,075	1,098	1,526	1,074	341	1,218	1,615	381
ALL MANUFACTURING	2,530	1,959	2,824	1,758	696	2,634	2,367	587
Mining	202	121	291	135	74	348	106	59
Railroads	16	35	11	41	6	6	23	3
Airlines	166	12	10	12	1	16	4	1
Other Transportation	43	32	199	111	50	140	93	20
Communications	536	582	87	130	88	48	234	70
Electric Utilities	715	466	999	400	116	1,462	507	187
Gas Utilities	42	28	20	9	14	72	47	8
Trade & Services	526	334	277	139	139	394	148	99
ALL NONMANUFACTURING	2,246	1,610	1,894	977	488	2,486	1,162	447
ALL BUSINESS	4,776	3,569	4,718	2,735	1,184	5,120	3,529	1,034

* Less than $500,000

TABLE VI

HISTORICAL POLLUTION CONTROL EXPENDITURES -- AIR WATER, SOLID WASTE
(Millions of Dollars)
(Continued)

INDUSTRY	1977			1978			1979		
	Air	Water	Solid Waste	Air	Water	Solid Waste	Air	Water	Solid Waste
Iron & Steel	$ 234	$ 182	$ 50	$ 285	$ 148	$ 3	$ 457	$ 157	$ 1
Nonferrous Metals	363	173	11	202	28	23	86	53	43
Electrical Machinery	47	47	32	85	66	42	55	91	58
Machinery	204	204	27	139	109	33	84	140	7
Autos, Trucks & Parts	76	76	69	294	5	4	231	231	235
Aerospace	29	27	10	56	24	17	16	24	18
Other Transportation Equipment**	15	11	15	20	20	26	---	---	---
Fabricated Metals	97	45	2	90	41	19	53	35	31
Instruments	15	22	4	39	21	4	36	33	26
Stone, Clay & Glass	85	49	30	132	70	58	79	42	21
Other Durables	85	38	23	78	33	55	73	75	80
TOTAL DURABLES	1,250	874	273	1,420	565	284	1,170	881	520
Chemicals	277	513	65	251	334	66	299	326	119
Paper & Pulp	191	223	54	155	156	4	200	154	84
Rubber	131	56	8	91	11	18	56	24	22
Petroleum	495	495	63	320	340	93	636	450	65
Food & Beverages	102	133	31	131	163	82	87	93	38
Textiles	33	30	13	37	67	4	13	101	18
Other Nondurables	21	99	19	31	48	24	51	34	39
TOTAL NONDURABLES	1,250	1,549	253	1,016	1,119	291	1,342	1,182	385
ALL MANUFACTURING	2,500	2,423	526	2,436	1,684	575	2,512	2,063	905
Mining	358	1,200	59	494	241	357	60	62	60
Railroads	6	37	12	9	36	11	13	41	10
Airlines	20	13	4	19	8	4	65	29	18
Other Transportation**	56	41	*	34	38	2	33	37	2
Communications	54	162	26	71	213	34	69	207	33
Electric Utilities	1,579	689	88	1,188	883	72	1,808	1,006	145
Gas Utilities	88	83	2	24	36	9	8	34	2
Trade & Services	452	227	227	596	298	298	580	290	290
ALL NONMANUFACTURING	2,613	2,452	418	2,435	1,753	787	2,636	1,700	560
ALL BUSINESS	5,113	4,875	944	4,871	3,437	1,362	5,148	3,763	1,465

* Less than $500,000

** As of 1979, other transportation equipment is included in other durables. As of 1980, other transportation services are included with communications.

TABLE VI

HISTORICAL POLLUTION CONTROL EXPENDITURES -- AIR, WATER, SOLID WASTE
(Millions of Dollars)
(Continued)

INDUSTRY	1980 Air	1980 Water	1980 Solid Waste	1981 Air	1981 Water	1981 Solid Waste	1982 Air	1982 Water	1982 Solid Waste
Iron & Steel	$ 314	$ 155	$ 35	$ 248	$ 147	$ 20	$ 151	$ 133	$ 5
Nonferrous Metals	144	45	58	119	73	42	35	150	34
Electrical Machinery	78	67	52	37	83	12	55	137	44
Machinery	71	127	2	186	162	9	94	87	16
Autos, Trucks & Parts	350	175	176	50	50	50	9	9	2
Aerospace	16	12	9	46	47	45	39	50	39
Other Transportation Equip.	--	--	--	--	--	--	--	--	--
Fabricated Metals	33	58	8	22	29	19	10	27	8
Instruments	36	20	16	34	65	29	27	46	23
Stone, Clay & Glass	111	43	39	92	55	10	42	22	17
Other Durables	111	52	39	134	124	76	70	50	34
TOTAL DURABLES	1,264	754	434	968	835	312	532	711	222
Chemicals	316	428	217	240	473	187	438	340	176
Paper & Pulp	210	187	61	183	141	4	103	134	76
Rubber	8	27	14	26	27	10	32	30	14
Petroleum	388	464	24	653	644	58	654	494	104
Food & Beverages	48	78	74	134	142	66	180	180	170
Textiles	35	29	21	30	34	13	31	23	9
Other Nondurables	59	57	57	18	18	19	238	60	60
TOTAL NONDURABLES	1,064	1,270	468	1,284	1,479	357	1,676	1,261	609
ALL MANUFACTURING	2,328	2,024	902	2,252	2,314	669	2,208	1,972	831
Mining	125	10	59	297	451	235	162	218	181
Railroads	5	63	90	33	30	18	29	126	29
Airlines	27	28	20	1	1	1	90	25	25
Other Transportation**	--	--	--	--	--	--	--	--	--
Electric Utilities	1,394	947	252	2,107	618	231	1,879	775	235
Gas Utilities	*	*	*	*	*	*	0	6	17
Communications & Other	36	34	11	43	106	15	85	85	21
Trade & Services	209	317	309	29	24	89	156	48	190
ALL NONMANUFACTURING	1,796	1,399	741	2,510	1,230	589	2,401	1,283	698
ALL BUSINESS	4,124	3,423	1,643	4,762	3,544	1,258	4,609	3,255	1,529

* Less than $500,000
NA - Not Applicable

TABLE VI

HISTORICAL POLLUTION CONTROL EXPENDITURES -- AIR, WATER, SOLID WASTE
(Millions of Dollars)
(Continued)

INDUSTRY	1980 Air	1980 Water	1980 Solid Waste	1981 Air	1981 Water	1981 Solid Waste	1982 Air	1982 Water	1982 Solid Waste
Iron & Steel	$ 314	$ 155	$ 35	$ 248	$ 147	$ 20	$ 151	$ 133	$ 5
Nonferrous Metals	144	45	58	119	73	42	35	150	34
Electrical Machinery	78	67	52	37	83	12	55	137	44
Machinery	71	127	2	186	162	9	94	87	16
Autos, Trucks & Parts	350	175	176	50	50	50	9	9	2
Aerospace	16	12	9	46	47	45	39	50	39
Other Transportation Equip.	--	--	--	--	--	--	--	--	--
Fabricated Metals	33	58	8	22	29	19	10	27	8
Instruments	36	20	16	34	65	29	27	46	23
Stone, Clay & Glass	111	43	39	92	55	10	42	22	17
Other Durables	111	52	39	134	124	76	70	50	34
TOTAL DURABLES	1,264	754	434	968	835	312	532	711	222
Chemicals	316	428	217	240	473	187	438	340	176
Paper & Pulp	210	187	61	183	141	4	103	134	76
Rubber	8	27	14	26	27	10	32	30	14
Petroleum	388	464	24	653	644	58	654	494	104
Food & Beverages	48	78	74	134	142	66	180	180	170
Textiles	35	29	21	30	34	13	31	23	9
Other Nondurables	59	57	57	18	18	19	238	60	60
TOTAL NONDURABLES	1,064	1,270	468	1,284	1,479	357	1,676	1,261	609
ALL MANUFACTURING	2,328	2,024	902	2,252	2,314	669	2,208	1,972	831
Mining	125	10	59	297	451	235	162	218	181
Railroads	5	63	90	33	30	18	29	126	29
Airlines	27	28	20	1	1	1	90	25	25
Other Transportation**	--	--	--	--	--	--	--	--	--
Electric Utilities	1,394	947	252	2,107	618	231	1,879	775	235
Gas Utilities	*	*	*	*	*	*	0	6	17
Communications & Other	36	34	11	43	106	15	85	85	21
Trade & Services	209	317	309	29	24	89	156	48	190
ALL NONMANUFACTURING	1,796	1,399	741	2,510	1,230	589	2,401	1,283	698
ALL BUSINESS	4,124	3,423	1,643	4,762	3,544	1,258	4,609	3,255	1,529

* Less than $500,000
NA - Not Applicable

TABLE VII

POLLUTION CONTROL EXPENDITURES AS A PERCENT OF CAPITAL SPENDING--HISTORICAL
(Percent)

INDUSTRY	1967	1968	1969	1970	1971	1972	1973	1974	1975**	1976
Iron & Steel	6.0%	5.2%	8.4%	10.3%	12.8%	12.3%	11.7%	9.3%	14.9%	20.4%
Nonferrous Metals	4.0	1.4	3.7	8.1	10.3	15.3	18.0	28.3	27.5	20.4
Electrical Machinery	1.0	3.0	1.6	2.3	2.3	2.8	3.7	2.3	4.2	4.8
Machinery	1.0	2.1	1.5	3.5	3.4	3.8	4.2	4.1	2.3	4.1
Autos, Trucks & Parts	4.0	2.0	3.3	4.2	6.7	6.6	11.2	10.6	5.7	4.8
Aerospace	1.0	1.9	2.7	2.8	4.7	6.2	10.2	2.0	4.6	4.5
Other Transportation Equipment	2.1	4.4	5.4	5.0	6.2	2.0	4.3	6.4	3.5	4.8
Fabricated Metals	2.0	3.4	3.5	4.3	7.1	7.3	7.2	5.6	10.8	11.2
Instruments	0.9	2.0	3.5	3.6	9.0	3.2	2.9	4.8	5.5	5.5
Stone, Clay & Glass	5.0	4.7	5.9	6.4	13.2	9.6	9.0	17.5	17.6	9.0
Other Durables	4.9	5.0	7.0	9.2	6.4	4.8	6.5	9.0	7.5	6.3
TOTAL DURABLES	2.8	3.1	3.7	5.0	6.3	6.0	7.5	8.4	8.9	8.3
Chemicals	3.0	3.9	4.5	4.9	8.2	10.9	10.2	7.3	8.9	12.3
Paper	6.0	6.2	9.1	9.3	20.6	23.3	22.8	16.6	21.9	25.7
Rubber	1.0	1.0	0.8	5.3	5.4	5.8	6.2	3.0	4.8	5.7
Petroleum	2.0	3.2	4.6	6.0	9.0	10.7	12.7	7.2	12.8	7.5
Food & Beverages	2.0	1.0	2.2	3.0	3.8	5.2	6.3	13.3	5.3	7.3
Textiles	1.0	1.7	1.6	2.3	3.3	2.6	3.5	5.4	8.9	12.6
Other Nondurables	4.0	1.8	2.8	5.5	1.0	5.0	3.1	2.2	1.4	2.2
TOTAL NONDURABLES	2.7	2.9	4.0	5.3	7.3	9.2	9.8	8.4	10.3	10.2
ALL MANUFACTURING	2.8	3.0	3.9	5.1	6.8	7.6	8.9	8.4	9.6	9.3
Mining	4.0	3.4	5.6	6.1	2.8	5.1	7.6	7.0	8.2	6.9
Railroads	NA	NA	NA	1.6	1.2	1.6	2.2	1.9	2.0	1.1
Airlines	NA	NA	NA	0.7	0.7	2.4	9.3	9.2	1.4	1.8
Other Transportation	0.0	0.0	0.0	0.3	5.3	0.8	2.0	2.1	8.6	5.2
Communications	0.0	0.0	0.0	0.0	*	2.4	2.0	4.8	1.4	1.5
Electric Utilities	2.0	2.9	1.7	3.8	4.4	7.9	7.6	7.1	9.1	11.5
Gas Utilities	4.0	1.0	4.9	4.4	2.0	1.6	1.5	2.2	1.3	3.5
Trade & Services	0.0	0.0	0.0	0.6	1.3	1.2	1.3	1.8	1.2	1.3
ALL NONMANUFACTURING	0.6	0.5	0.6	1.2	1.7	2.4	2.9	3.7	3.3	3.7
ALL BUSINESS	1.4	1.4	1.8	2.6	3.3	3.9	4.6	5.3	5.5	5.6

NA - Not Available
* Less than .05%
**Solid waste is included starting in 1975.

TABLE VII

POLLUTION CONTROL EXPENDITURES AS A PERCENT OF CAPITAL SPENDING--HISTORICAL
(Percent)
(Continued)

INDUSTRY	1977	1978	1979	1980	1981	1982
Iron & Steel	16.7%	17.3%	19.9%	15.3%	13.1%	8.3%
Nonferrous Metals	29.1	12.0	7.6	8.0	6.8	8.1
Electrical Machinery	2.7	3.4	2.8	2.1	1.3	2.2
Machinery	6.6	3.9	2.2	1.7	2.7	1.5
Autos, Trucks & Parts	3.8	4.2	8.4	7.7	1.5	0.3
Aerospace	3.3	3.0	1.1	0.5	2.1	2.1
Other Transportation Equipment**	3.3	4.2	--	--	--	--
Fabricated Metals	5.8	5.2	3.9	3.3	2.4	1.7
Instruments	3.0	4.0	5.4	3.2	5.6	4.1
Stone, Clay & Glass	7.3	8.4	3.6	5.1	5.0	3.1
Other Durables	4.9	5.0	4.0	3.3	4.9	2.9
TOTAL DURABLES	7.0	5.6	5.0	4.2	3.4	2.6
Chemicals	10.5	7.7	6.9	7.6	6.6	7.2
Paper	13.0	7.9	7.9	6.7	4.9	5.2
Rubber	11.8	5.7	4.7	2.8	3.6	4.4
Petroleum	8.3	5.4	7.1	4.2	5.1	4.7
Food & Beverages	5.2	6.3	3.3	2.7	4.2	6.8
Textiles	6.0	7.8	8.8	5.2	4.9	4.7
Other Nondurables	5.1	3.0	2.6	2.9	0.8	5.5
TOTAL NONDURABLES	8.7	6.2	6.1	5.0	4.8	5.6
ALL MANUFACTURING	7.9	5.9	5.6	4.5	4.1	4.2
Mining	17.5	10.7	1.6	1.4	5.8	3.6
Railroads	1.8	1.6	1.6	3.7	1.9	4.2
Airlines	1.7	1.0	2.8	1.9	*	3.6
Other Transportation***	2.3	1.8	--	--	--	--
Electric Utilities	10.6	8.7	10.7	9.2	9.9	8.6
Gas Utilities	3.8	1.3	0.7	*	*	0.3
Communications & Trade & Services	1.3	1.5	1.3	0.7	0.2	0.4
ALL NONMANUFACTURING	4.3	3.3	2.9	2.1	2.2	2.2
ALL BUSINESS	5.5	4.2	3.8	3.1	3.0	3.0

NA - Not Available
* Less than 0.5%
** Solid waste is included starting in 1975.
*** As of 1979 other transportation equipment is included in other durables and other transportation services are included with communications and commercial.